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Environmental Communication Strategies on TikTok: A Study on the United Nations Environment Programme (UNEP)

TikTok'ta Çevresel İletişim Stratejileri: Birleşmiş Milletler Çevre Programı (UNEP) Üzerine Bir Araştırma

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Abstract

This study analyzes UNEP's communication strategies on TikTok, contributing to the understanding of the organization's digital communication strategies, and elucidating TikTok's role in the communication strategies of international environmental organizations. Employing a content analysis, the study scrutinized 402 audiovisual content promulgated via UNEP's TikTok interface from June 2, 2020, to January 3, 2025. The analytical dimensions encompassed thematic delineations, linguistic modalities, typological classifications, strategic intents, affective undertones, structural configurations, interactional metrics, spokesperson attributes, and the demographic parameters of spokespersons. The findings revealed that UNEP utilized diverse video formats, characterized by varying emotional tones and spokesperson profiles, to convey messages on topics such as climate change, sustainability, food waste, and biodiversity, aiming to foster audience engagement. Nevertheless, the analysis found that the organization does not sufficiently consider the needs of disadvantaged individuals, represents certain groups in a limited manner, and fails to adequately adhere to the principle of multilingualism. Moreover, notwithstanding the recurrent incorporation of subtitles, captions, music, and hashtags within the content, the organization's engagement metrics remained conspicuously low.

Keywords: *Social Media, TikTok, Environmental Communication, United Nations Environment Programme*

Öz

Bu çalışma, UNEP'in TikTok'taki iletişim stratejilerini inceleyerek, kuruluşun dijital iletişim stratejilerine ve TikTok'un, uluslararası çevre kuruluşlarının iletişim stratejilerindeki rolüne dair bir katkı sağlamayı amaçlamıştır. Araştırmada, UNEP'in TikTok hesabında 2 Haziran 2020 ile 3 Ocak 2025 tarihleri arasında yayımlanan 402 video, içerik analizi tekniği ile incelenmiştir. Bu analizle, paylaşılan içeriklerin temaları, dili, türleri, amaçları, duygusal tonları, formatları, etkileşim düzeyleri, sözcüleri ve sözcülere ilişkin demografik veriler ortaya konulmuştur. Araştırma sonucunda, UNEP'in çeşitli duygusal tonlara ve sözcülere sahip farklı video türleri aracılığıyla takipçilerine iklim krizi, sürdürülebilirlik, gıda israfı ve biyoçeşitlilik gibi konularda mesajlar iletmeye ve onları harekete geçirmeye çalıştığı görülmüştür. Ancak, kuruluşun dezavantajlı bireylerin ihtiyaçlarını yeterince göz önünde bulundurmadığı, belirli grupları sınırlı bir şekilde temsil ettiği ve çok dillilik ilkesini yeterince uygulamadığı tespit edilmiştir. Ayrıca, kuruluşun paylaşımlarında yoğun bir şekilde altyazı, açıklama, müzik ve hashtag gibi unsurları kullansa da etkileşim oranlarının düşük kaldığı saptanmıştır.

Anahtar Kelimeler: *Sosyal Medya, TikTok, Çevresel İletişim, Birleşmiş Milletler Çevre Programı*

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Introduction

In the 21st century, intensifying natural and anthropogenic phenomena pose severe risks to human populations and environmental systems. Natural disasters such as deforestation, biodiversity loss, and extreme weather events, along with human-induced crises like industrial failures and fire hazards, critically threaten global ecological stability (Bhanye & Maisiri, 2023, p. 2). According to the Ecological Threat Report 2024 published by the Institute for Economics & Peace, 50 out of 207 nations and territories are currently classified as experiencing high or very high ecological threat levels. Furthermore, statistical data indicate that natural disasters lead to an average annual loss of over 100 lives or the displacement of individuals, with 2023 alone recording 32.6 million displacements across 151 countries as a result of hazardous environmental events. The increasing prevalence of these events over time, coupled with their dissemination through diverse communication channels including direct experiential interactions, conventional media, and digital platforms, particularly social media has led to the establishment of the field of environmental communication which is defined as "the transmission of information and the strategic application of communicative methodologies pertaining to environmental issues"(J. R. Cox, 2013; Takahashi et al., 2021).

Environmental knowledge dissemination occurs through multiple media channels, with social media emerging as a particularly influential medium due to its extensive global reach and intensive user engagement (Xiao, 2023). As a cost-effective tool for environmental communication, social media facilitates information exchange, collaboration, and user-generated content production among diverse stakeholders, including environmental non-governmental organizations (ENGOs), public and private sector entities, and local communities (Dellech et al., 2024). While social media and emerging online video formats hold substantial potential for advancing environmental communication on a global scale, they simultaneously contribute to the proliferation of misinformation and disinformation. Consequently, scholarly interest in the strategic application of digital platforms such as Facebook, Twitter, YouTube, and Instagram by institutional actors has been increasing (Kaul et al., 2020; San Cornelio et al., 2024; Sancho Ortiz, 2025; Vu et al., 2021). However, a significant gap remains in academic research regarding the systematic utilization of TikTok for environmental communication. Therefore, further investigation is required to assess TikTok's potential as an emerging platform for disseminating environmental information and fostering public engagement.

Building on this line of inquiry, this study examines TikTok as a rapidly growing platform for short-form environmental communication. Its unique affordances, including short video format, interactive community features, and the duet function, facilitate a visually engaging, vernacular, and meme-driven mode of communication (Çakıcı & Meriç, 2024; Huber et al., 2022; Meriç & Çakıcı, 2024). These characteristics position TikTok as a strategic tool for environmental organizations to educate and mobilize young audiences on pressing environmental issues. Addressing this research gap, the study investigates the environmental communication strategies employed by the United Nations Environment Programme (UNEP) on TikTok. As a globally recognized authority in environmental governance, UNEP strategically launched its TikTok account on June 2, 2020, to enhance accessibility and engagement in environmental discourse. To analyze UNEP's communication approach, the study is structured as follows: Sections 1 and 2 establish the theoretical framework of environmental communication in social media contexts, Section 3 outlines the methodology, including

sample selection, data sources, and coding categories, while Section 4 presents findings, followed by a conclusion summarizing key insights and broader implications for environmental communication research and practice.

1. Environmental Communication on Social Media

Environmental communication emerged as a distinct academic field in the United States during the 1980s, initially positioned as a specialized sub-discipline within communication studies. Over time, it has evolved into a multidisciplinary domain that aims to disseminate information regarding environmental issues, promote ecologically responsible behaviors, and shape public perceptions regarding sustainability (Bhanye & Maisiri, 2023; J. R. Cox & Hansen, 2015). This field is inherently interdisciplinary, drawing upon multiple academic frameworks and methodologies, and is examined through a variety of perspectives and dimensions in scholarly discourse. Flor (2004, p. 4) defines environmental communication as the strategic application of communication techniques and methods for the management and preservation of the environment, encompassing the conscious distribution of environmental knowledge and information. Jurin et al. (2010, p. 15) conceptualize environmental communication as a structured process of generating and disseminating messages that convey the human-environment relationship. Cox (2013, p. 13) views it as a symbolic mechanism that facilitates the understanding of environmental challenges, mediates public responses, and negotiates the interactions between human society and the natural world. Klöckner (2015, p. 18) frames it as a communicative process where environmental meanings are exchanged through symbols, signs, and behaviors, emphasizing its pragmatic utility in fostering sustainable lifestyles. Collectively, these definitions underscore the notion that environmental communication extends beyond the mere transfer of information, performing several critical functions such as augmenting environmental awareness, cultivating individual consciousness, and facilitating behavioral transformations that align with principles of sustainability.

The proficient execution of environmental communication necessitates an interdisciplinary methodology, wherein practitioners must possess a comprehensive understanding of ecological principles in conjunction with a sensitivity to the intricate interdependencies between the natural environment and cultural constructs. Critical to the effective transmission of environmental messages are advanced competencies in media utilization, robust communication skills tailored to diverse societal demographics, and adeptness in strategic networking, particularly within advocacy-oriented frameworks. Furthermore, the observance of ethical principles fortifies the professional credibility of environmental communicators, with the integration of sustainable behavioral models being imperative not only in theoretical discourse but also as an essential component of quotidian practices. The acquisition of mediation and conflict resolution expertise emerges as a requisite competency, given the frequent stakeholder disputes in environmental initiatives. Consequently, a confluence of technical knowledge, cultural insight, media literacy, ethical integrity, and proficient interpersonal communication abilities constitutes the requisite skill set for professionals engaged in environmental communication (Carbaugh & Cerulli, 2013; Flor, 2004; Jarreau et al., 2017; Jurin et al., 2010; Moscato, 2023).

The media represents a fundamental instrument for the dissemination of environmental information and the formation of public perceptions regarding environmental phenomena. Since the inception of the environmental movement in the 1960s, the media has evolved into a platform for incorporating environmental issues into the public and political agenda

(Hansen, 2011, p. 8). The media's capacity to influence perceptions and behaviors stems from its ability to frame environmental issues in various ways. Framing that accentuates negative consequences generates fear and induces a sense of urgency (Bertolotti & Catellani, 2021, p. 10; Smith & Wolfe, 2023, p. 1337; Wang et al., 2022, p. 1), whereas framing that advocate for sustainable practices is associated with the promotion of environmentally responsible behaviors (Dedman & Lee, 2023, p. 393; MacKinnon et al., 2022, p. 6). The credibility of the source conveying the message plays a critical role in the acceptance of the information by the audience and enhances the likelihood of subsequent behavioral responses (Kim & Kim, 2014, p. 64). Furthermore, messages that resonate with the pre-established values of individuals tend to exhibit greater efficacy (Van Den Broek et al., 2017, p. 145). Additionally, the inclusion of visual elements and narrative techniques in environmental messaging contributes to enhancing the accessibility, efficacy, and emotional engagement with the information, thereby augmenting environmental awareness (Lazard & Atkinson, 2015, p. 6; Lee & Lee, 2020, p. 1; McCormack et al., 2021, p. 1191; Tu et al., 2018, p. 4). These considerations collectively underscore the paramount importance of employing credible, strategically framed, and multi-dimensional environmental communication to foster individual mobilization and to facilitate the adoption of sustainable behaviors.

The shift from traditional media to digital platforms has precipitated a notable transformation in the domain of environmental communication. Historically, the primary methods for disseminating environmental information included door-to-door campaigns, newspapers, radio, and television. However, these modalities have proven suboptimal for addressing urgent environmental concerns, due to constraints such as elevated costs, extended lead times, and limited accessibility (Bhanye & Maisiri, 2023; Hajri & Daife, 2024). In contrast, social media, which builds upon the technological and ideological infrastructure of the World Wide Web, has restructured environmental communication by facilitating the rapid, cost-effective, and interactive dissemination of user-generated content (Kaplan & Haenlein, 2010, p. 61). Unlike traditional media, the social media environment is expansive and multifaceted (Çakıcı, 2024, p. 2). Kaplan & Haenlein (2010) categorize social media platforms into six distinct categories: blogs, collaborative projects, social networking sites, content communities, virtual social worlds, and virtual game worlds. This vast digital framework serves as a highly effective tool for accelerating the dissemination of information and augmenting public engagement with environmental communication. According to the "We Are Social" report (Digital 2024: October Global Statshot Report., 2024) , 5.22 billion individuals worldwide engage with social media platforms, with users spending an average of 2 hours and 19 minutes per day on these platforms. Facebook remains the most widely used social media platform, followed by YouTube, Instagram, WhatsApp, and TikTok.

The proliferation of social media and digital technologies has precipitated a paradigm shift in the domain of environmental communication. The ubiquitous use of social media platforms has fundamentally reconfigured the modalities through which individuals generate, access, and interact with information within their social networks, while concurrently altering the interplay between agenda setters and information recipients (Briandana & Mohamad Saleh, 2022; Siregar et al., 2024). Cox (2013) and Kaur (2015) posit that the process of environmental communication has been subject to democratization, in that social media facilitates the capacity for any user to both produce and consume user-generated content, disseminate environmental issues, and engage in reciprocal interactions. Individuals are enabled to independently seek, construct, and engage with online communities that correspond to their

values, ideologies, or interests, thereby fostering the expansion of their social networks. Through the dissemination of their perspectives and participation in digital discourses, individuals are able to catalyze civic movements and mobilize collective action under a unified thematic framework (Cortés-Ramos et al., 2021).

The advent of social media has instigated a significant paradigm shift in environmental activism, positioning it as a fundamental instrument in the orchestration, dissemination, and mobilization of individuals and collectives concerning environmental concerns (Boulianne & Ohme, 2022; R. Cox & Depoe, 2015; Habsari et al., 2021; Nazir & Wani, 2024; Uzoechi, 2014). By leveraging these platforms, environmental advocates and communities have formulated novel methodologies to communicate multifaceted perspectives, underscore the perils of environmental degradation, and augment the momentum of sustainability-oriented initiatives (Habsari et al., 2021, p. 37; Kaur, 2015, p. 314; Uzoechi, 2014, p. 128). Notably, blogs have facilitated the articulation of diverse viewpoints within the contentious discourse surrounding oil exploration in the Nigerian Delta, while social media has assumed a pivotal role in heightening public cognizance of the ecological threats posed by rare earth mining during the anti-Lynas protests (Kaur, 2015, p. 314; Uzoechi, 2014, p. 128). In analogous instances, such as the Keystone XL pipeline project, social media was strategically employed as a potent advocacy instrument by both proponents and opponents of the initiative, while environmental activists in Indonesia expanded their movement's reach by attaining augmented recognition through these digital platforms (Habsari et al., 2021, p. 37). Furthermore, the increasing prominence of influencers in the propagation of environmental narratives, coupled with the enhanced visibility afforded by social media to environmental campaigns, has precipitated a higher degree of public engagement, which often surpasses the attention allocated to other political discourses (Nazir & Wani, 2024, p. 2).

The influence of social media activism has been subjected to critical examination, particularly in instances where its impact remains limited to online participation. Such limitations have provoked critiques of "slacktivism," thereby questioning its efficacy in generating substantive real-world transformations (Jacqmarcq, 2021, p. 42). Specifically, empirical investigation into the "*Save the Sharks*" campaign on X has demonstrated that while social media proves effective in raising awareness, this awareness may not necessarily result in concrete actions if individuals remain satisfied with merely offering online support (Hersinta & Sofia, 2022, p. 113). Despite this, environmental organizations and communicators strategically exploit social media platforms as instruments for disseminating environmental messages to broader audiences, enhancing community consciousness, and fostering environmentally responsible behaviors (Bires & Raj, 2021, p. 464; Han & Cheng, 2020, p. 14). The prominence of visual content and narrative techniques has been recognized as an efficacious mechanism in environmental communication, facilitating the processing and retention of complex information, while concurrently establishing emotional connections to environmental issues through the cultivation of empathy (Lazard & Atkinson, 2015, p. 6; Lee & Lee, 2020; McCormack et al., 2021; Tu et al., 2018, p. 4). Moreover, user-generated content (UGC) is often regarded as possessing higher credibility than official messages, thereby augmenting community engagement and reinforcing the collective sense of responsibility (Hajri & Daife, 2024, p. 9; Han & Cheng, 2020, p. 14; Sultan et al., 2020, p. 13).

Social media has evolved into a crucial instrument not only for augmenting awareness but also for facilitating fundraising, fostering community engagement, and supporting pro-environmental initiatives (McCaskill & Harrington, 2017, p. 309; Sharif et al., 2015, p. 59).

Through digital platforms such as X, environmental non-governmental organizations (NGOs), academic researchers, and activists have extended environmental discourse beyond the boundaries of academic circles, thereby enhancing the accessibility of scientific data to broader audiences (Comfort & Hester, 2019; Fox, 2012; Terracina-Hartman et al., 2014; Vu et al., 2021). Simultaneously, the capacity of environmental sustainability campaigns to engage particularly youth demographics underscores the transformative impact of social media on the modulation of public opinion (Oh & Ki, 2023; Xu & Han, 2019, p. 1). As a result, social media has become an indispensable tool for fostering environmental awareness, mobilizing collective action, and promoting sustainable behaviors, consequently altering the dynamics of information dissemination and activist engagement.

Although social media serves as a potent instrument for environmental communication, various impediments, including misinformation, echo chambers, and algorithmic biases, may significantly curtail the efficacy of messaging and impede meaningful public engagement (Nwafor et al., 2024, p. 283). Lai et al. (2022, p. 9) assert that misinformation not only undermines public comprehension of climate science but also presents a direct threat to public health. The presence of echo chambers on social media platforms, wherein individuals are predominantly exposed to content that affirms their pre-existing beliefs, further complicates the challenges of climate change communication. In a study of social media networks, Williams et al. (2015, p. 126) found that users typically engage with individuals sharing similar viewpoints, thus restricting their access to diverse perspectives. Additionally, algorithmic structures that prioritize user interaction over the accuracy of information expedite the propagation of sensationalized content, which in turn obscures substantive discourse on environmental issues (Garcia-Gathright et al., 2018, p. 1; Huang, 2023, p. 1-2). These factors constrain the potential of social media as a tool for augmenting environmental awareness, thereby highlighting the imperative for communication strategies that prioritize accuracy and strategic engagement.

2. Environmental Communication on TikTok

TikTok constitutes a digital platform that facilitates the dissemination of short-form audiovisual content, typically accompanied by background music (Çakıcı & Meriç, 2024, p. 283; Meriç & Çakıcı, 2024, p. 2). The content generated by early adopters of TikTok predominantly consisted of performances featuring singing and dancing, frequently synchronized to contemporary popular music and augmented by special effects filters. However, over time, the nature of user-generated content on TikTok has diversified, encompassing a broader spectrum of videos. This content paradigm was initially popularized through the Musical.ly application, which was later acquired by ByteDance, an AI technology conglomerate headquartered in Beijing, China, in 2017 (Çakıcı & Aslıbay, 2025). In 2018, ByteDance effectuated the amalgamation of Musical.ly with TikTok (Çakıcı, 2025, p. 139). Both platforms, originating from China, had distinct launch timelines: Musical.ly was introduced in 2014, whereas TikTok was released in 2016 (Nieto-Sandoval & Ferré-Pavia, 2024; Paşaoğlu & Koca, 2022).

TikTok's singular format facilitates the expression of creativity and engagement, rendering it especially popular among younger demographics, particularly Generation Z. The platform's algorithm prioritizes content based on user interactions, thereby fostering viral phenomena and challenges that actively engage users on diverse issues, including environmental topics (Çakıcı & Meriç, 2024; Hautea et al., 2021). Meriç & Çakıcı, (2024, p. 6) assert that TikTok users,

stemming from various social and cultural contexts, employ the platform for a broad spectrum of purposes. These include the pursuit of entertainment, the discovery of content congruent with their personal interests, the display of creative talents, the generation of income, the acquisition of new competencies, the expansion of their intellectual horizon, the enhancement of fashion acumen, the cultivation of social connections, the sharing of pets' appealing traits, the virtual exploration of previously uncharted territories, and the promotion of social consciousness.

A review of the extant academic literature indicates that social media platforms are recurrently analyzed in relation to environmental communication. Platforms such as X (Hopke & Hestres, 2018; Sancho Ortiz, 2025; Xiao, 2023), Facebook (Bloomfield & Tillery, 2019; Vu et al., 2021), Instagram (Haastrup, 2022; Molder et al., 2022; San Cornelio et al., 2024; Stoddart et al., 2024), and YouTube (Allgaier, 2019; Olausson, 2020; Ramadhan & Hadi, n.d.; Shapiro & Park, 2018) are prominently featured in the existing discourse on the topic. In contrast, the scholarly inquiry concerning TikTok and its relationship with environmental communication remains considerably limited. The few extant studies primarily focus on discrete aspects such as climate change (Basch et al., 2022; Evangelista & Garcia, 2024; Hautea et al., 2021; Nieto-Sandoval & Ferré-Pavia, 2024; Unay-Gailhard et al., 2023), environmental education (Anggraeni & Wardhana, 2024), sustainability practices (A Lin et al., 2023), environmental misinformation (Pereira & Ha, 2024), and disaster-related communication (Liu et al., 2024).

The existing academic literature reveals a significant gap in research concerning the use of TikTok by environmental organizations and their communication strategies on the platform. This gap highlights the necessity for further studies to investigate TikTok's role in environmental communication and the extent to which environmental organizations exploit its interactive features. The platform's youthful user base and rapid content dissemination present critical opportunities for raising environmental awareness and addressing misinformation. In particular, the active engagement of international environmental organizations on TikTok can facilitate the broad distribution of scientifically accurate environmental information and counter the spread of misinformation. For instance, the UNEP launched its TikTok account on June 2, 2020, initiating environmental awareness campaigns. However, the limited scholarly focus on UNEP's use of TikTok necessitates a thorough evaluation of its impact on the platform. This highlights the need for greater inclusion of UNEP's and similar organizations' digital media strategies in the environmental communication literature. This study will analyze UNEP's TikTok communication strategies to assess the platform's potential for raising environmental awareness.

3. Methodology

This study aims to analyze the official TikTok account of the United Nations Environment Programme (UNEP) within the framework of environmental communication. In alignment with this aim, the following research questions were formulated:

1. How does UNEP utilize TikTok for environmental communication, specifically regarding video themes and functions?
2. What video genres and content formats does UNEP employ on TikTok?
3. What types of characters are featured in UNEP's TikTok videos?
4. What emotions are conveyed in UNEP's TikTok videos?
5. What is the distribution of ethnicity, gender, and age in UNEP's TikTok videos?

The research design has been developed in alignment with the research questions. A search was conducted on TikTok utilizing both the organization's full name and its acronym. To confirm the authenticity of the UNEP account, the presence of a blue verification checkmark was verified. Additionally, the official UNEP website was consulted to ascertain whether it contained a direct link to the TikTok account. A content analysis was conducted, defined as a "systematic, replicable technique for compressing extensive text into a reduced number of content categories, based on explicit coding rules" (Berelson, 1952; Krippendorff, 2019). The analysis encompassed all 402 videos published on the official TikTok account of UNEP from June 2, 2020, to January 3, 2025, without any selection criteria, as the researchers coded the entire content available within this timeframe. This approach aimed to transform the original audiovisual data into a condensed format while identifying and presenting the emergent patterns and themes within the data. The unit of analysis is the post, specifically short video clips (Meriç & Çakıcı, 2024, p. 8). Content analysis is a prevalent technique in video-based environmental communication research (Basch et al., 2022; Rahyadi et al., 2025).

In this study, the coding framework for UNEP's TikTok micro-videos was developed based on the established models within environmental and organizational communication (Basch et al., 2022; Çakıcı, 2025; Liu et al., 2024; Lovejoy & Saxton, 2012; McDonnell et al., 2024; Meriç & Çakıcı, 2024; S. Wang & Ji, 2015; Zhu et al., 2019). The framework, aligned with the research objectives, consisted of eight categories: (1) video content formats (McDonnell ve diğerleri, 2024; Çakıcı, 2025), (2) engagement (Li ve Xie, 2020; Çakıcı ve Meriç, 2024), (3) video message functions (Lovejoy ve Saxton, 2012), (4) video themes (Alley ve Hanshew, 2022; Çakıcı, 2024), (5) video genre types (Li ve diğerleri, 2021), (6) video emotions (Wang ve Ji, 2015; Meriç ve Çakıcı, 2024), (7) characters in the video (Li ve diğerleri, 2021), and (8) ethnicity, gender, and age distribution in the video (Çakıcı ve Meriç, 2024). The initial coding category pertains to video content format, encompassing data related to video duration, subtitles, spoken language, captions, hashtags, and music. The subsequent category involved documenting user engagement metrics, including the number of likes, comments, views, saves, and shares for each video. The third category addressed the analysis of video message functions, such as organizational action, organizational information, and organizational community. The fourth coding frame is video theme. Specifically, video theme refers to the topic referred to in the video, including climate change and climate crisis, environmental sustainability, forest ecosystems and wildlife, environmental pollution and solutions, biodiversity, the COVID-19 global pandemic, food waste and food crisis, designated days, granting awards to environmental contributors, the vision, mission, and values of UNEP, marine ecosystems and species, and gender equality and women's rights. The fifth coding category refers to video genre types, classifying videos into formats such as documentary, oral speech, news, pictorial slideshow, acting, animated infographics, and TikTok dance. The sixth coding category pertains to video emotions, encompassing hope/encouragement, alarm/concern, humor, empathy, severity, and the absence of emotion. Following the coding of emotional content, the subsequent coding frame involved identifying the characters presented in the videos, which included UNEP employees and representatives, the general public, public figures, activists, scientists, healthcare professionals, and animated characters. Lastly, each video was analyzed according to demographic attributes, specifically ethnicity, gender, and age distribution.

In this research, a coding schema was developed based on an exhaustive analysis of existing scholarly literature, thereby ensuring the methodological precision and scientific integrity of

the study. This coding schema was evaluated by two faculty members with doctoral qualifications from the Faculty of Communication, leading to subsequent revisions based on their expert input. A 10% random sample of UNEP's TikTok videos was initially coded by the first researcher. The same 10% sample was independently recoded by the second researcher. The resulting inter-coder reliability was quantified at approximately 91,5%, indicating substantial agreement between the coders. Discrepancies, manifesting exclusively during the coding of the emotional tone of the videos, were addressed through rigorous deliberation, ultimately resulting in a consensus on coding decisions. A threshold of 80% or higher is generally regarded as an acceptable inter-coder agreement rate for content analysis (Gheyle & Jacobs, 2017; Miles & Huberman, 1994; Patton, 2002). The elevated level of agreement observed in this study substantiates the reliability and methodological robustness of the results.

Lastly, it is imperative to explicitly assert that the utilization of the artificial intelligence tool within the confines of this study was rigorously confined to the syntactic and grammatical enhancement of the manuscript. No AI-based methodologies were incorporated into any other phase of the research process, encompassing data acquisition, analytical procedures, interpretative frameworks, or the derivation of conclusions.

4. Findings

Table 1. Video Content Format and Engagement Metrics

Video Length	3 s to 165 s	
Video Format	**Number**	**Percentage (%)**
Subtitle	399	99,3%
Music	385	95,8%
Caption	370	92%
Hashtag	369	91,8%
Language	**Number**	**Percentage (%)**
English	402	100%
Spanish	8	2%
Chinese	7	1,7%
Portuguese	3	0,7%
Arabic	3	0,7%
Indonesian	2	0,5%
Swahili	1	0,2%
Luhya	1	0,2%
French	1	0,2%
Korean	1	0,2%
Italian	1	0,2%

Gujarati	1	0,2%
Jamaican Patois	1	0,2%
Engagement	**Number**	
Views	3.021.623	
Likes	114.817	
Forwards	4.122	
Save	2.301	
Comments	2.276	

Between June 2, 2020, and January 3, 2025, UNEP's TikTok account published 402 videos. Table 1 delineates the findings that are explicitly aligned with the second research question, offering a rigorous exposition of the pertinent data. As depicted in Table 1, the video durations varied from 3 to 165 seconds. Short-form videos facilitated the rapid conveyance of messages, aligning with the constrained attention span of viewers, while long-form videos provided in-depth information, enabling detailed exploration of specific subjects. Subtitles were employed in nearly all content, serving as an inclusive strategy to enhance accessibility for individuals with hearing impairments and speakers of diverse languages, thereby expanding the reach of the content. This approach ensured that UNEP's environmental communications remained accessible to a global audience, irrespective of linguistic or disability-related constraints. Music was incorporated in a substantial portion of the videos, amplifying the emotional impact of the content and augmenting the effectiveness of the conveyed environmental messages. Additionally, captions were frequently utilized, providing contextual clarification to enhance the comprehension of the content. The widespread use of hashtags demonstrated a strategic effort to optimize the visibility and discoverability of UNEP's content across the platform. English was consistently employed in all UNEP TikTok content, aligning with the organization's objective to engage a global audience. However, languages such as Spanish, Chinese, Portuguese, Arabic, Indonesian, Swahili, Luhya, French, Korean, Italian, Gujarati, and Jamaican Patois were sporadically featured, suggesting an insufficient application of multilingual principles. This limited multilingual approach may stem from institutional constraints in content production or strategic prioritization based on the linguistic preferences of UNEP's primary target audience. The absence of sign language usage indicated shortcomings in UNEP's strategy to ensure equitable access to information for individuals with disabilities, revealing gaps in the implementation of an inclusive communication framework.

The 402 videos on UNEP's TikTok account have garnered a total of 3,021,623 views. However, when juxtaposed with TikTok's expansive user base, this view count does not meet the expected threshold. The videos have accumulated 114,817 likes, signifying a generally favorable reception. Nevertheless, the engagement level does not indicate a particularly high degree of interaction. The videos have received 2,276 comments, suggesting a constrained level of viewer input regarding the content. Furthermore, the comment count implies either the lack of content conducive to stimulating extensive discourse or an absence of a deliberate communication strategy by UNEP to actively encourage such engagement. The videos have been shared 4,122 times and saved 2,301 times, reflecting a tendency among viewers to disseminate the content within their social networks and revisit the material. However, the overall engagement data indicates that the content has not achieved widespread reach, and

the platform's full potential has not been optimally utilized. This limited engagement may be influenced by TikTok's algorithmic structure, which prioritizes highly interactive and viral content, or a potential misalignment between UNEP's messaging approach and the platform's core audience demographics.

Table 2. Functional and Thematic Taxonomy of TikTok Videos

Video Message Function	**Number**	**Percentage (%)**
Action	188	46,8%
Information	183	45,5%
Community	31	7,7%
Total	402	100%
Theme	**Number**	**Percentage (%)**
Designated Days	106	26,4%
Climate Change and Climate Crisis	53	13,2%
Environmental Sustainability	52	12,9%
Forest Ecosystems and Wildlife	36	9%
Environmental Pollution and Solutions	35	8,7%
Granting Awards to Environmental Contributors	32	8%
The Vision, Mission, and Values of UNEP	23	5,7%
Marine Ecosystems and Species	20	5%
Food Waste and Food Crisis	17	4,2%
Biodiversity	17	4,2%
The COVID-19 Global Pandemic	8	2%
Gender Equality and Women's Rights	3	0,7%
Total	402	100%

Table 2 presents the findings related to the first research question. As shown in Table 2, UNEP's TikTok content strategy is predominantly focused on mobilizing followers and disseminating information. Of the 188 videos examined, it was identified that these primarily aimed to encourage followers to engage in actions such as making donations, purchasing products, participating in events, supporting environmental movements, or raising environmental awareness through these actions. Additionally, 183 of the analyzed videos were found to provide information on a range of topics, including the climate crisis, sustainability, environmental pollution, and biodiversity. Lastly, 31 videos were categorized as expressing gratitude or engaging with followers. These findings demonstrate that UNEP's TikTok content strategy is primarily concentrated on encouraging action and delivering informational content, with limited inclusion of engagement and appreciation-based content.

As outlined in Table 2, UNEP's TikTok account primarily disseminates content related to specific commemoration days. A significant portion of the 106 videos is focused on observances related to environmental conservation. Notably, days such as World Environment Day, World Bicycle Day, and World Waste Day are utilized to promote the

enhancement of environmental awareness. Similarly, observances such as World Oceans Day, World Wildlife Day, and World Giraffe Day are employed to communicate messages concerning the preservation of biodiversity. Additionally, days such as International Women's Day, World Press Freedom Day, and International Mother Language Day are incorporated to raise societal awareness. These posts illustrate UNEP's strategy of leveraging specific commemorative days to foster global awareness on both environmental and social issues. A total of 53 videos focuses on climate change and the climate crisis. These videos incorporate references to prominent climate agreements, including the United Nations Climate Change Conference and the Paris Climate Agreement. Furthermore, examples from various global regions, such as the bushfires in Australia and tropical storms in Asia, are used to highlight the tangible impacts of climate change. The primary objective of these videos is to raise awareness of the global climate crisis and propose potential solutions. In addition, 52 videos are centered around sustainability, addressing topics such as eco-friendly practices, electric vehicles, and sustainable agriculture. These videos also provide insights into carbon footprints and environmental conservation. Overall, these contents underscore the necessity of adopting sustainable practices and highlight the significance of both individual and collective efforts in advancing environmental actions.

A total of 36 videos addresses global forests and their associated wildlife. The content of these videos outlines the threats faced by species such as elephants, lions, migratory birds, and jaguars, examining the linkage between these threats and anthropogenic factors. The issues of deforestation and habitat loss are presented, with human activities identified as the primary causal factors. To mitigate these threats, the videos propose actionable solutions, including reforestation projects and conservation programs. Additionally, 35 videos are centered on environmental pollution, with a predominant focus on plastic pollution. The videos highlight the accumulation of plastics in the oceans and their detrimental impact on marine life. The persistence of plastic waste in the environment and its ecological consequences are also addressed. Furthermore, examples of various forms of pollution, including air, water, and soil contamination, are provided. UNEP's objective in disseminating these videos is to enhance public awareness of environmental pollution and promote the adoption of sustainable practices. Furthermore, 32 videos feature individuals recognized for their contributions to environmental protection and sustainability, with awards presented during UNEP-organized ceremonies. An additional 23 videos focus on UNEP's vision, mission, and values, detailing the organization's environmental and sustainability goals, highlighting its events, and elucidating its contributions to combating global environmental challenges.

A total of 20 videos focusses on the conservation of oceans and marine life. These videos address the threats faced by marine species, including seahorses, sea turtles, and dugongs, which are primarily attributed to anthropogenic activities. Additionally, the videos provide information on essential marine ecosystems, such as coral reefs, seagrasses, and mangroves. The content highlights the detrimental impact of human activities on marine ecosystems, with UNEP offering various proposed solutions to mitigate these threats. Furthermore, 17 videos concentrate on food waste and the global food crisis. These videos outline the environmental and economic implications of food waste. Additionally, the videos discuss strategies for sustainable consumption and production, which are critical to ensuring food security. Another 17 videos are dedicated to the topic of biodiversity. These videos emphasize the importance of ecosystem preservation and highlight the essential role of biodiversity in sustainable development. The videos also address global threats to biodiversity and propose potential

solutions to mitigate the loss of biological diversity. 8 videos focus on the pandemic, particularly addressing the spread of Covid-19, measures taken to control its transmission, and quarantine procedures. Lastly, 3 videos are centered around women's rights, focusing on issues related to gender inequality, the protection of women's rights, and the challenges faced by women within the context of human rights.

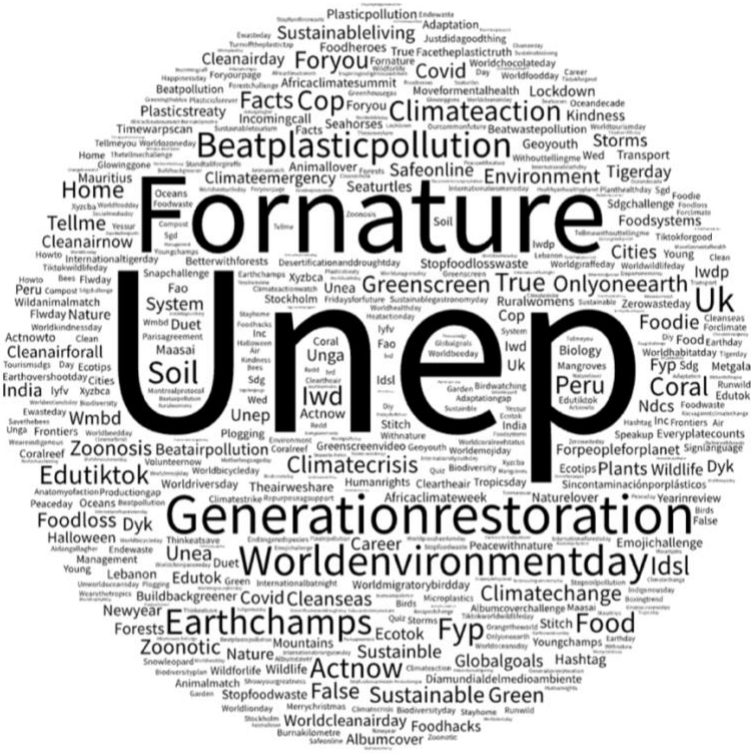

Figure 1. Frequency-Weighted Hashtag Taxonomy for UNEP TikTok Engagement

It was ascertained that a total of 971 hashtags were employed across 369 out of the 402 videos disseminated on UNEP's TikTok account. This finding substantiates the assertion that UNEP implements a methodical hashtag strategy intended to augment the visibility and accessibility of its content on the TikTok platform. As delineated in Figure 1, UNEP predominantly utilized the hashtag #Unep as a mechanism for self-representation and the reinforcement of its visibility within the platform's ecosystem. Additionally, UNEP's TikTok videos encompass content addressing a wide range of topics, including but not limited to commemorative observances, climate change and the climate crisis, sustainability, forest ecosystems, environmental pollution, the recognition of individuals contributing to environmental conservation, marine biodiversity, food waste and the global food crisis, biodiversity conservation, pandemics, and women's rights. As depicted in Figure 1, and consistent with the thematic content of UNEP's TikTok videos, the hashtags #Worldenvironmentday, #Climatecrisis, #Climateaction, #Cop, #Sustainable, #Fornature, #Beatplasticpollution, #Earthchamps, #Cleanseas, #Stopfoodwaste, #Generationrestoration, #Covid, and #Ruralwomens were employed. This empirical observation indicates that UNEP seeks to enhance the accessibility of its content by incorporating hashtags that align with the thematic structure of the videos disseminated on its TikTok account. Furthermore, it was observed that UNEP employed the hashtags #Fyp and #Foryou, thereby seeking to reach an expansive and diversified audience. In addition, UNEP's TikTok account has been noted to accentuate educational content through the use of hashtags such as #Edutiktok, #Edutok, and #Dyk,

thereby positioning itself to deliver instructional content to its viewership. Moreover, the hashtag #Actnow was utilized to emphasize the urgency of environmental challenges and to galvanize viewers into action. Finally, UNEP's TikTok account incorporated the hashtag #Young, thus targeting the platform's youthful demographic. In summary, these findings substantiate the conclusion that UNEP adheres to a strategically devised and methodologically rigorous approach to hashtag utilization on TikTok, aimed at enhancing the visibility of its content, reaching its intended audience in a manner congruent with thematic objectives, and raising awareness of critical environmental issues.

Table 3. Video Genre Types and Their Associated Emotional Themes

Video Type	**Number**	**Percentage (%)**
Documentary	106	26,4%
Oral Speech	76	18,9%
News	55	13,7%
Pictorial Slideshow	55	13,7%
Acting	54	13,4%
Animated Infographic	40	10%
TikTok Dance	16	4%
Total	402	100%
Emotion of the Videos	**Number**	**Percentage (%)**
Hope/Encouragement	166	41,3%
Alarm/Concern	88	21,9%
Humor	68	16,9%
Empathy	42	10,4%
Severity	24	6%
None	14	3,5%
Total	402	100%

Table 3 delineates the findings that are explicitly aligned with the second research question, offering a rigorous exposition of the pertinent data. As delineated in Table 3, UNEP has deployed diverse video typologies on the TikTok platform. The most extensively employed typology is the documentary, wherein environmental challenges or proposed mitigation strategies are articulated through a documentary-oriented narrative structure. The second most frequently utilized typology is oral speech, which is characterized by designated speakers directly addressing the audience to convey information pertaining to environmental subjects. The third typology, news, encompasses the structured reporting of environmental events and recent developments in a journalistic format. The fourth typology, pictorial slideshow, incorporates static imagery and graphical representations to visually explicate environmental phenomena. The fifth typology is acting, wherein environmental narratives are conveyed through dramatized enactments and theatrical performances. The sixth typology, animated infographic, employs animated graphical representations to render complex informational content accessible. The least frequently utilized typology is TikTok dance, integrating rhythmic

elements and choreographed movements to disseminate environmental messages. Collectively, these findings demonstrate UNEP's utilization of a heterogeneous array of video typologies to optimize the transmission of environmental information on TikTok.

Table 3 presents the findings directly corresponding to the fourth research question, offering an analysis of the pertinent data. As illustrated in Table 3, UNEP incorporated distinct emotional tones into its video content on the TikTok. The most frequently utilized emotional tone was hope/encouragement, characterized by content designed to convey optimism and motivational stimuli to the audience. The second most prevalent tone was alarm/concern, employed to invoke a sense of urgency and heightened awareness regarding environmental challenges. The third tone, humor, was implemented to engage viewers through content featuring comedic and lighthearted elements. The fourth tone, empathy, aimed to foster an affective connection with the audience by eliciting empathetic responses. The fifth tone, severity, was utilized to underscore the critical and consequential nature of environmental issues. The least utilized tone was “none”, intentionally devoid of any attempt to elicit an emotional reaction. These findings underscore UNEP's deliberate deployment of a diversified range of emotional tones to elicit specific cognitive and affective responses from the audience within the framework of its TikTok communication strategy.

Table 4. Quantitative Assessment of Characters in Video Content

Character in Video	**Number**	**Percentage (%)**
UNEP Employees and Representatives	118	29,4%
None	112	27,9%
General Public	74	18,4%
Public Figures	51	12,7%
Activists	21	5,2%
Scientists	15	3,7%
Healthcare Professionals	8	2%
Animated Characters	3	0,7%
Total	402	100%

The study revealed that UNEP utilized a range of spokespersons in its TikTok videos. Table 4 presents the findings directly corresponding to the third research question, providing a detailed analysis of the relevant data. According to the data presented in Table 4, UNEP employees and representatives were featured in 118 videos, general public in 74 videos, public figures in 51 videos, activists in 21 videos, scientists in 15 videos, healthcare professionals in 8 videos, and animated characters in 3 videos. UNEP predominantly employed its own employees and representatives, thereby establishing an official institutional presence. The frequent inclusion of members of the public reflects UNEP's strategic intent to engage directly with viewers and position the general public as disseminators of environmental messages. The appearance of public figures indicates UNEP's collaboration with individuals possessing societal influence in efforts to enhance environmental awareness. The inclusion of activists is part of UNEP's strategy to forge a strong connection with communities, emphasizing environmental issues. The presence of scientists and healthcare professionals underscores the objective of highlighting the health implications of environmental challenges, while the limited use of animated characters suggests an educational strategy aimed at

generating attention from younger audiences. In 112 videos, no spokespersons were included; these videos predominantly showcased wildlife or environmental data. Overall, the findings suggest that UNEP has adopted a strategic approach in utilizing a diverse array of spokespersons to disseminate its environmental messages to a broad audience through its TikTok platform.

Table 5. Ethnicity Distribution in Videos

Ethnicity	Number	Percentage (%)
Unspecified	206	51,2%
None	112	27,9%
Indian	19	4,7%
Filipino	13	3,2%
British	13	3,2%
Ghanaian	10	2,5%
Danish	9	2,2%
Cameroonian	8	2%
Lebanese	7	1,7%
Indonesian	7	1,7%
Kenyan	7	1,7%
Portuguese	7	1,7%
Chinese	6	1,5%
Belarusian	5	1,2%
Emirati	5	1,2%
Ugandan	4	1%
Italian	3	0,7%
Colombian	3	0,7%
Argentinian	2	0,5%
Barbadian	2	0,5%
Brazilian	2	0,5%
French	2	0,5%
South African	2	0,5%
Egyptian	2	0,5%
Tanzanian	2	0,5%
German	1	0,2%
Jamaican	1	0,2%
Japanese	1	0,2%
Canadian	1	0,2%
Korean	1	0,2%
Chilean	1	0,2%

Vietnamese	1	0,2%
Zimbabwean	1	0,2%

Table 5 outlines the findings directly related to the fifth research question, delivering an analysis of the pertinent data. As presented in Table 5, no data pertaining to the ethnic origins of individuals were provided in 206 videos. This observation implies that UNEP's content strategy on TikTok is primarily oriented towards accentuating the universality of the conveyed message rather than emphasizing identity. Nevertheless, partial representation of individuals from various ethnic backgrounds has been observed in the videos, including individuals of Indian, Filipino, British, Ghanaian, Danish, Cameroonian, Lebanese, Indonesian, Kenyan, Portuguese, Chinese, Belarusian, and Emirati descent. Additionally, the videos include limited representation of individuals of Ugandan, Italian, Colombian, Argentine, Barbadian, Brazilian, French, South African, Egyptian, Tanzanian, German, Jamaican, Japanese, Canadian, Korean, Chilean, Vietnamese, and Zimbabwean descent. These findings suggest that UNEP's content strategy incorporates a degree of emphasis on the visibility of ethnic diversity, although the principles of equality and inclusivity in representation have not been fully actualized.

Table 6. Gender, and Age Distribution in Videos

Gender	**Number**	**Percentage (%)**
Female	225	56%
Male	208	51,7%
None	112	27,9%
Age	**Number**	**Percentage (%)**
Adult	255	63,4%
Youth	140	34,8%
Child	29	7,2%
None	112	27,9%

Table 6 delineates the findings directly correlated with the fifth research question, providing an analysis of the pertinent data. As presented in Table 6, the majority of individuals featured in the videos are women, while male representation is comparatively minimal. These findings suggest that the content prioritizes the representation of women, with men appearing less frequently. The augmented representation of women in these videos may be regarded as an indicator of progress towards gender equality. Additionally, as indicated in Table 6, the majority of individuals represented in the videos are adults, with a considerable proportion of the content also featuring young individuals. However, it has been observed that children are represented in a restricted manner. TikTok is predominantly utilized by individuals within the age range of 16 to 34 years. The substantial representation of this demographic within the platform suggests that UNEP's content strategy is partially congruent with the platform's structural characteristics.

Conclusion

This study sought to contribute to the academic discourse surrounding the communication strategies of the UNEP on the TikTok, and by extension, to the role of TikTok in the broader context of communication strategies employed by international environmental organizations. To this end, a content analysis was employed to examine all content published on UNEP's official TikTok account. The analysis revealed that UNEP primarily focused on environmental issues such as climate change, sustainability, environmental pollution, food waste, and biodiversity, alongside topics such as the COVID-19 pandemic and women's rights. These topics were presented through a variety of video formats and emotional tones. The overarching objective of the videos was to inform and mobilize viewers. The findings suggested that UNEP utilized TikTok to disseminate important environmental messages, demonstrating an effective utilization of the platform for communication purposes. However, the study identified a notable omission of sign language, thereby indicating a partial neglect of the needs of disadvantaged individuals. Furthermore, while a diverse range of ethnic groups was represented in the videos, certain groups were either underrepresented or completely absent. The analysis also highlighted the limited use of languages other than English, with the principle of multilingualism insufficiently adhered to. Additionally, despite the frequent incorporation of subtitles, captions, music, and hashtags in UNEP's posts, the engagement rates remained comparatively low.

To address the deficiencies identified in UNEP's TikTok content and to enhance the inclusivity of its communication strategies, UNEP must undertake specific actions. Primarily, the organization must incorporate sign language into its content to ensure accessibility for individuals with hearing impairments. Additionally, UNEP is required to increase the representation of diverse ethnic groups, particularly those that are underrepresented or excluded, thereby ensuring equitable visibility on the platform. In order to implement the principle of multilingualism, UNEP must include multiple languages in its videos. This would facilitate the wider dissemination and amplification of its messages on a global scale. To improve engagement metrics, the timing and format of the content must be optimized in alignment with TikTok's algorithm and user behavior. Moreover, UNEP should prioritize content formats that are consistent with prevailing trends and encourage user participation. For instance, challenge formats, elements of gamification, and prompts designed to elicit user comments could be employed. To enhance multilingual content production, UNEP could collaborate with regional influencers or multilingual content creators to ensure more effective language representation and reach. In terms of algorithm-friendly content strategies, UNEP should consider producing videos that leverage trending sounds, hashtags, and popular content formats to increase visibility. To further improve user engagement, UNEP could launch user-generated content campaigns, where followers are encouraged to create and share their own videos related to UNEP's environmental themes. Additionally, posts featuring interactive elements, such as polls, open-ended questions, and calls to action for comment sections, could stimulate greater user interaction. Lastly, UNEP must continually refine its strategies by incorporating user feedback, improving the infrastructure that enhances accessibility, and adopting a dynamic, responsive communication model. These measures will serve to enhance both the quality and accessibility of UNEP's content on TikTok, thereby facilitating an expanded reach.

This study examined the communication strategies employed by UNEP on TikTok, contributing to the discourse on the organization's digital communication framework and elucidating

TikTok's role in shaping the communication strategies of international environmental organizations. However, the extant body of research remains insufficient. Future investigations should focus on the long-term effects of UNEP's TikTok content on viewers. Such studies would enhance our understanding of the tangible impacts of the content on environmental awareness and social transformation. Additionally, further research is required to explore how content is perceived within various cultural contexts. This would elucidate the reception of UNEP's global messages at the local level, providing insights into the measurement of their impact. Moreover, an examination of the differences between TikTok and other social media platforms is essential. Such comparisons would provide clarity on the overall effectiveness of UNEP's digital strategies, enabling a more precise delineation of inter-platform variations. Collectively, these avenues of inquiry will contribute to advancing knowledge regarding the efficacy of UNEP's digital strategies on TikTok and addressing existing gaps within the academic literature.

Declarations

* *Ethical Approval:* This study did not involve human participants, and therefore, ethical approval was not required. The research adhered to ethical guidelines applicable to studies that do not engage human subjects, and no interventions or interactions necessitating ethical oversight were conducted. As such, formal approval from an institutional review board or ethics committee was not sought.

* *Publication Ethics:* This study has been conducted in full compliance with the guidelines set forth in the "Guidelines for Scientific Research and Publication Ethics of Higher Education Institutions." Furthermore, the manuscript underwent a thorough examination using iThenticate plagiarism detection software, and no instances of plagiarism were identified, ensuring the originality and integrity of the study.

* *Author's Contribution Rate:* The first author's contribution rate is 40%, the second author's contribution rate is 30%, and the third author's contribution rate is 30%.

* *Conflict of Interest:* The authors declare no financial, commercial, legal, or professional conflicts of interest, either direct or indirect, that could influence the outcomes or interpretation of this study.

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Acknowledgments: The study was neither produced from a thesis, nor presented at a congress, symposium, or conference. Furthermore, the study did not incorporate any artificial intelligence, with the sole exception of utilizing ChatGPT exclusively for the purpose of grammatical assistance. No other aspect of the study involved the application of artificial intelligence.

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